

# A case report of gramoxone inteon intoxication

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Paraquat is a herbicide widely used in developing countries for its rapid effect and low cost. In spray form, the effects on skin and respiratory system are relatively safe compared with other herbicides, and it is widely used in agriculture. However, since it has a high mortality rate upon oral poisoning, it has been thrown out from Korea but is still used in some countries (1, 2). Gramoxone inteon is a modified form of paraquat, which has been released to reduce the mortality rate caused by ingesting. It is a compound containing a seaweed extract, named alginate, which is known to inhibit absorption in the stomach upon ingestion (3). We report a case of a patient who has recovered by appropriate management after ingesting a significant amount of gramoxone inteon. A 42-year-old man was admitted to the emergency room due to ingestion of 400mL of gramoxone inteon 2 hours before admission. The patient was accompanied by hypotension (SBP/DBP 80/40mmHg), tachycardia (108beats/min) and tachypnea (22breaths/min) at the time of admission, but his consciousness was clear, while complaining of chest discomfort and dyspnea (Fig. 1). Potassium level is 2.8mmol/L. Venous Blood Gas analysis is High anion gap-High

osmolar gap metabolic acidosis (Fig. 2). He took Fuller's earth and was admitted to intensive care unit to undergo hemoperfusion for 3 days (Fig.3, 4). At the same time, immunosuppressant (methylprednisolone 1g 3 for 3 days, cyclophosphamide 15mg/kg for 2 days) and antioxidant (N-acetylcysteine, vitamin C) treatments were maintained (Fig.3). After the acute phase treatment, pulmonary fibrosis progressed due to chemical damage, but it improved after immunosuppressant (cyclophosphamide, methylprednisolone) and antioxidant (glutathione, vitamin C) treatments (Fig.5). And There are additional complications, especially oral ulcer and erosive esophagitis (Fig.6). The patient was discharged in 40 days of admission. This case report documented the clinical features, changes in laboratory results, and treatments of the patient who ingested a significant amount of gramoxone. We hope that this report would be helpful for the medical staff who will treat patients who took gramoxone.

Initial vital sign	
Blood pressure	80/40 mmHg
Heart rate	108 Beats/min
Respiratory rate	22 Breaths/min
Body temperature	36.5 °C

Figure 1. Initial vital sign.

Initial laboratory findings	
WBC Count	13.8 x 10 <sup>3</sup> / uL
RBC Count	3.98 x 10 <sup>6</sup> / uL
Hb	14.6 g / dL
Platelet	312 x 10 <sup>3</sup> / uL
Neutrophil	45.3 %
Na+	142 mEq/L
K+	2.8 mEq/L
Cl-	93 mEq/L
BUN/Cr	6.6/0.9 mg/dL
VBGA(pH-pCO2-pO2-HCO3-)	7.186-25.3mmHg-53.3mmHg-9.7mmol/L
Lactic acid	9.3 mmol/L

Figure 2. Initial laboratory findings.

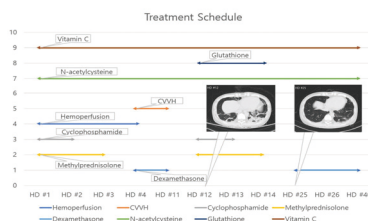


Figure 3. Treatment schedule of Gramoxone inteon intoxication.

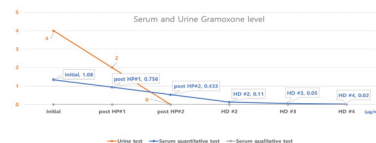


Figure 4. Gramoxone level of Serum and Urine.

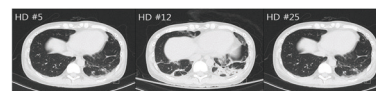


Figure 5. Lung fibrosis Progression and Remission due to Immunosuppressive Treatment.

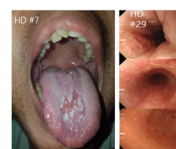


Figure 6. Oral ulcer and Erosive esophagitis, Complication of Gramoxone inteon intoxication.